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INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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50X1-HUM

COUNTRY East Germany/USSR

REPORT

SUBJECT Welding Technology in East Germany, Czechoslovakia and the USSR

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THIS IS UNEVALUATED INFORMATION. SOURCE GRADINGS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

Information is given on the (spot-welding process developed in East Germany, use of resistance-welding in East Germany, and two Soviet enterprises concerned with welding technology,) the Paton Institute for Welding in Kiev and SNITMASCH, Moscow.

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1. A. Spot-Welding.

A process, new for the DDR, was developed in 1959 at the Central Institute for Welding Technology (Zentral Institut fuer Schweisstechnik), Halle. The process was known as spot-welding under argon (gas) protection. It was a straight copy of the U.S. development, without any improvements. The process worked well. Although this process was not being used either in the CSR or the USSR as late as 1959, the Soviets automatically received copies of such development reports from the DDR. 50X1-HUM

The following pieces of equipment which are used in spot welding (using argon) were manufactured by the following plants: (a) the welding gun (Pistole) by Schuetze, Jena, Wiesestrasse, and (b) the control component (Steuergeraet) by VEB Transformatoren Werk in Reichenbach i.V. this equipment lends itself to four separable operations: 50X1-HUM

1. Spot-welding
2. Gas-cutting (argon and hydrogen)
3. Welding
4. Bolt-welding.

this process was qualitatively better than other above named processes and up to 80 percent cheaper. With the earlier process only steel up to 0.2 percent carbon can be welded. copper, nickel, brass, aluminum, etc., can also be welded. at present a separate apparatus was needed for each of the other types, one through three above, whereas, with his invention, a single apparatus (with attachments) would be all four operations. the equipment for welding (point three above) cost approximately DM 3,000, whereas apparatus, usable for all four operations, cost approximately DM 1,200. 50X1-HUM

B. Resistance-Welding.

the DDR and the CSR are behind in the resistance welding technique. Practically all resistance welding apparatus and equipment is being imported There are two firms in the DDR which manufacture ordinary resistance welding equipment, but no special equipment. These firms are: Locomotives Electricity Plant (Lokomotiven Elektrizitaets Werk) (LEW) Hans Baimler in Henningsdorf (bei Berlin), and a firm (name unknown) in Dresden. 50X1-HUM

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2. This research was done at the Central Institute. it was more or less complete. In general, argon technique and special electrodes were being used. The electrodes were manufactured at the Elektrodenwerk, Berlin-Oberschoeneweide. 50X1-HUM

3. information on the following institutes:

A. PATON Institute for Welding in Kiev. 50X1-HUM

Prof. Paton is the inventor of electro-slag-welding (Elektro-Schlacken-Schweissung) - for thick, large diameters. 50X1-HUM

the research was coming along well. The ELIRA UNIMELT (unter Pulver) process seemed well advanced and good equipment was being developed at the institute.

B. SNITMASCH (phonetic), Moscow.

This institute primarily developed electrodes for austenitic steels and heat-balance-research (testing?) ((Waermebilanzuntersuchung bei Schweissung)) during welding. The chief was Professor JAROWINSKI (phonetic) (fnu). The specialist was Professor RIKAZIN (phonetic) (fnu), member of the Soviet Academy of Sciences. 50X1-HUM

4. See under Point Three above. 50X1-HUM

5. some research was possibly being carried out at the Academy of Sciences. However, it was planned to do some research on electron beam welding in 1961 at the Central Institute, according to the 1961 plan.

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7. In the DDR the Central Institute has just begun research.

8. In the DDR, LEUNA, Merseburg built a large production facility for argon in 1959. The capacity was greater than the need. 50X1-HUM the surplus was exported to Hungary. There is no Helium in the DDR and none is used for welding.

9. Foil material welding research was not done. Apparatus for this purpose was imported 50X1-HUM

Thin Gauge welding research on molybdenum, Nickel alloy, Titanium, but not on Tantalum, was being done at the Zentral Institut under Dipl. Ing. Leinhos (fnu). Research was being done with low currents 50X1-HUM to 10 amperes under argon for Molybdenum and Nickel alloys. Research on Titanium was being done in a "closed room" with argon. Dr. Beckert (fnu) worked on Titanium. Research was still going on but the status was unknown to Subject.

10.

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11. electro-slag welding was only profitable for material 30 mm and up. Aircraft industry used thinner materials.